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Dairy farming in the North Louisiana Upland Cotton Area: organization, costs and returns

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Dairy Farming in the North Louisiana Upland Cotton Area

Organization, Costs, and Returns

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Cooperating

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Organization, Costs, and Returns

By Frank D. Barlow, Jr., and Morris L. McGough[1]

INTRODUCTION

Dairy farms in the North Louisiana Upland Cotton Area are concentrated in two fairly distinct localities. The Shreveport milkshed comprises the upland areas of Caddo and DeSoto Parishes and a fairly concentrated area in the western part of Claiborne Parish. The Monroe milkshed embraces the eastern part of the North Louisiana Upland Cotton Area, and dairy farms are fairly well scattered throughout Lincoln, Jackson, and Ouachita Parishes.[2]

For several years the agricultural pattern of the Upland Cotton Area has been undergoing a significant transition from a one-crop system to various alternative enterprises. In the general search for profitable alternatives to cotton many farmers have considered dairying as an enterprise that would fit into existing farming systems and provide a profitable use of resources.

In order to have a more reliable basis for appraising the long-run potentialities of dairying as well as the success of those farmers who are already in the dairy business, an analysis was made of dairy farming in the North Louisiana Upland Cotton Area (Figure 1). The Louisiana Agricultural Experiment Station in cooperation with the Bureau of Agricultural Economics made a survey of dairy farms in the spring of 1947 in which the following aspects were covered:

(1) Complete record of the farm business.

(2) Record of the dairy enterprise.

(3) The supply, demand, utilization and distribution of milk.

Complete records were obtained on 54 dairy farms in Jackson, Lincoln, Claiborne, Caddo, and DeSoto Parishes of the North Louisi-

[1]Mr. Morris L. McGough was formerly with the Louisiana Agricultural Experiment Station. He is now a member of the staff of Doane Agricultural Service, St. Louis, Missouri.

[2]In the last few years because of the increasing demand for milk and milk products quite a few farmers in the Mississippi River Delta Cotton Area have gone into the dairy business and the general area has been enlarged considerably.

ana Upland Cotton Area for the year 1946. These farms sold the bulk of their milk wholesale to the creameries in Monroe and Shreveport.

Dairy farms were stratified as to size and a random sample

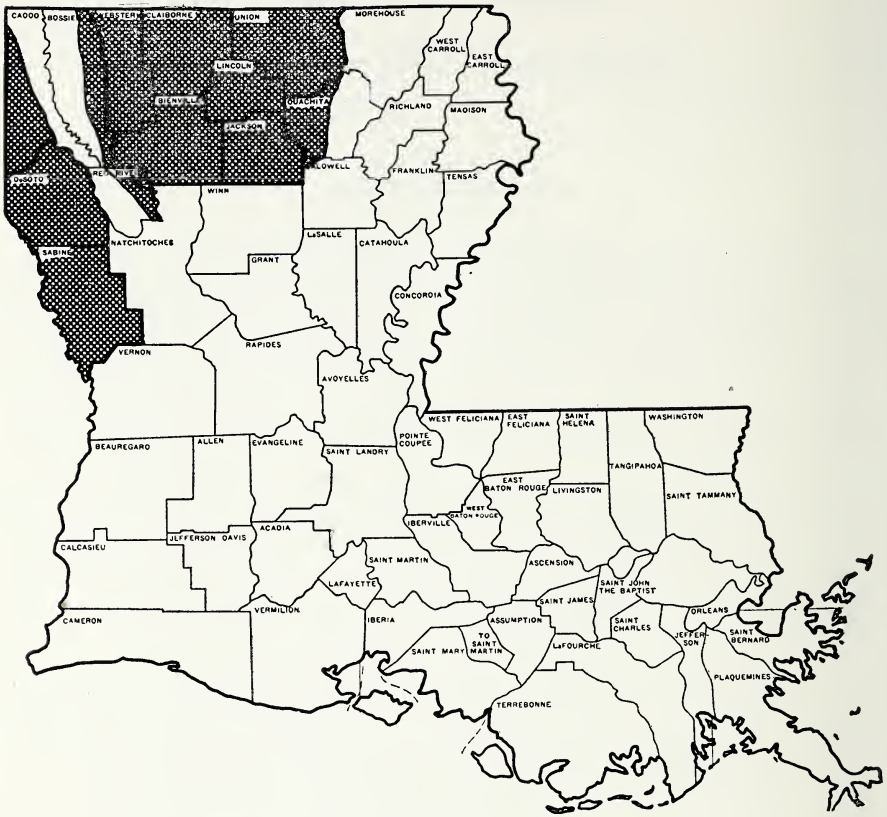

Fig 1.—Location of the North Louisiana Upland Cotton Area.

was taken within each size group. The dairy farms were considered to be representative of the area and typical size groups of dairy farms in the area. The survey method was employed in obtaining information on the organization of the farms, the dairy enterprise, labor, and feeding practices. In most cases data pertaining to receipts and expenses were taken directly from farm records. The data on the amount of milk sold, prices received, government subsidy, and butterfat content were obtained from the local creameries. Producer-distributors, farmers who retailed their own milk, were excluded from the sample. Only a few of the farmers interviewed were selling any milk at retail, and in all cases this quantity was small.

It is the purpose of this bulletin to present the analysis of the

dairy farm business and the dairy enterprise.[3] The results obtained from this analysis should be of material value to dairy farmers in the area in improving their farm organization and achieving economy in milk production. The results also shed considerable light on the present returns to dairy farmers, the things that are essential for success, and in general they provide the basis for appraising the future possibilities for success. The results should also be of use to farmers who plan to shift to dairying as a major enterprise on their farms.

ORGANIZATION OF FARMS STUDIED

The dairy enterprise was the major source of income on all farms included in this study. However, crop production, principally cotton, was of considerable importance on some farms. Crop yields, including both cotton and feed crops, were very low. This was due in large part to the low natural fertility of the soil and to the poor cultural practices followed.

Considerable opportunity exists for the economical production of forage on individual farms, but farmers have made little effort to produce feed on the farm. Enterprise studies in the area have shown that through the use of improved fertilization and cultural practices farmers can produce roughages to a much greater advantage than grains, and therefore should concentrate in the production of forage. Soils in the area respond well to the application of commercial fertilizers.

Much remains to be done in the improvement of pastures. Pasture improvement provides a means of reducing the current excessive feed costs and is generally conceded to be the best means of achieving lower dairy production costs.

Land Use

The average size of farm was 322 acres, of which 71 acres were classified as cropland (Table 1). *Permanent pasture, plowable and improved,* averaged 50 acres per farm, or 15 per cent of the total farm acreage. *Permanent pasture, plowable but unimproved,* averaged 115 acres per farm, or 35 per cent of the total farm acreage. *Woodland pasture* averaged 75 acres per farm, or 22 per cent of the total farm acreage.

Most of the land operated on these farms was devoted to the

[3]The marketing phases of the work are presented in a separate report by W. H. Alexander, "Milk Marketing in the North Louisiana Upland Cotton Area," Department of Agricultural Economics, Louisiana State University.

dairy enterprise, with 240 acres, or 72 per cent of the total acreage, being utilized for pastures.

TABLE 1. Land Use, 54 Dairy Farms, North Louisiana Upland Cotton Area, 1946

Land use	Acres			
	Owned	Rented in	Rented out	Operated
Average per farm:				
Tilled cropland	34	4	3	35
Idle cropland	34	2	—	36
Total cropland	68	6	3	71
Permanent pasture, plowable improved	47	3	—	50
Permanent pasture, plowable unimproved	75	41	1	115
Woodland pasture	49	26	—	75
Woodland and waste	14	5	—	19
Farmstead	2	—	—	2
Total acreage	255	81	4	332

Farm Capital Investment

The average capital investment was $19,894 (Table 2). Slightly over one-half of the total investment was in land and buildings. The estimated value of real estate owned was $41 an acre. The investment in livestock, which was primarily dairy cattle, averaged $7,152 per farm, or 36 per cent of the total farm capital. This indicates the important position of the dairy enterprise in the capital organization of dairy farms. Dairy equipment made up 3 per cent of the total investment, other machinery and equipment 6 per cent, and feed and supplies 3 per cent. The average capital investment was $375 per cow on the farms included in this study.

TABLE 2. Distribution of Capital, 54 Dairy Farms, North Louisiana Upland Cotton Area, 1946

Item	Farm capital	
	Dollars	Per cent of total
Average per farm:		
Dairy animals	6,725	34
Other livestock	427	2
Total livestock	7,152	36
Land	5,894	30
Buildings	4,510	22
Total real estate	10,404	52
Dairy equipment	636	3
Other machinery and equipment	1,230	6
Feed and supplies	472	3
Total farm capital	19,894	100

Livestock Organization

There was an average of 53 dairy cows per farm on the farms studied in 1946 (Table 3). During the year the average herd increased from 50 cows per farm on January 1, 1946, to 57 cows per farm on December 31, 1946, indicating an expansion of the dairy enterprise during the year. Other livestock including horses, mules, beef cattle, hogs, and chickens were of minor importance.

TABLE 3. Livestock Organization, 54 Dairy Farms, North Louisiana Upland Cotton Area, 1946

Type of livestock	January 1, 1946	December 31, 1946	Average for the year
Average per farm:	*Number*	*Number*	*Number*
Dairy cows, over 2 years	50	57	53
Dairy heifers, 1-2 years	7	11	9
Dairy calves	11	11	11
Bulls	2	2	2
Other cows, over 2 years	1	1	1
Other calves	—	—	—
Workstock	2	2	2
Other horses and colts	1	1	1
Brood sows	—	1	1
Boars	—	—	—
Other hogs and pigs	1	2	2
Poultry	49	49	49

Labor Force

Dairy farmers worked the equivalent of 8 months[4] during the year (Table 4). The farmers' families worked the equivalent of 4 months during 1946, while cropper labor accounted for the equival-

TABLE 4. Labor Force, 54 Dairy Farms, North Louisiana Upland Cotton Area, 1946

Item	All farms
Months of labor:	
Operator	8
Family	4
Cropper	4
Hired	16
Total	32
Man equivalent	2.7
Productive man work units:	
Crops	180
Livestock	430
Other receipts	27
Total	637
Productive man work units per man	236

[4] A month was considered as 25 days.

ent of 4 months of work. Hired labor accounted for 16 months of work during the year. This results in a total of 32 months of labor expended in the operation of the average dairy farm in 1946, or the equivalent of 2.7 men working for the entire year.

Counting the amount of work done by one man in a 10-hour day as a productive man work unit, there was an average of 180 productive man work units expended on crop production, 430 on livestock, and 27 for other activities. Sixty per cent of the man labor was used for livestock, and practically all of this labor was devoted to the dairy enterprise.

Since the average man accomplished 236 10-hour days of work on the farm during the year, it may be concluded that dairy farms as a whole made efficient or at least full use of their labor during the year.

Farm Receipts

Total farm receipts averaged $13,473 per farm in 1946. Sixty-eight per cent of the receipts resulted from the sale of milk (Table 5).

TABLE 5. Farm Receipts, 54 Dairy Farms, North Louisiana Upland Cotton Area, 1946

Source of receipts	Farm receipts	
	Dollars	Per cent of total
Average per farm:		
Dairy products	9,239	68
Dairy cattle sold	703	5
Other livestock receipts	209	2
Total, livestock and livestock products	10,151	75
Crops	623	5
Government subsidy[1]	586	4
Machinery and equipment sold	6	—
Other receipts	515	4
Increase in farm capital	1,592	12
Total farm receipts	13,473	100
Per cent of farm receipts from the dairy enterprise	86	

[1]Wartime milk subsidy payments were in effect until June, 1946, at which time they were discontinued.

Of all farm receipts, 86 per cent came from the dairy enterprise, including dairy product sales, sales of dairy animals, government milk subsidy, and increase in inventory value of dairy stock.[5] Receipts from crops were of minor importance and accounted for only 5

[5]Dairy enterprise receipts were $11,604 (Table 12).

per cent of total receipts. The source of farm receipts indicates the specialized nature of dairy farms in the North Louisiana Upland Cotton Area.

Farm Expenses

Average farm expenses amounted to $10,819 (Table 6). Purchased feed was the largest individual item of expense, averaging $5,834 per farm, or 54 per cent of all expenses. Livestock purchases were second in importance, being $1,336 per farm, or 12 per cent of all expenses. Man labor was next in importance, amounting to $1,248 per farm, or 12 per cent of all expenses.

TABLE 6. Farm Expenses, 54 Dairy Farms, North Louisiana Upland Cotton Area, 1946

Item	Farm expenses	
	Dollars	Per cent of total
Average wage per farm:		
Hired labor	1,014	10
Cropper labor	234	2
Total labor	1,248	12
Custom work	21	—
Board	26	—
Repairs to machinery	115	1
Repairs to bldgs. and fences	119	1
Truck costs	259	2
Tractor costs	69	1
Auto costs	63	1
Hauling milk and feed	359	3
Feed	5,834	54
Salt	27	—
Fertilizer	193	2
Seed	63	1
Ginning	13	—
Sprays and disinfectants	45	—
Ice	25	—
Electricity	135	1
Other utilities	17	—
Taxes	34	—
Insurance	21	—
Miscellaneous livestock expenses	58	1
Miscellaneous	67	1
Total current expenses	8,816	81
Livestock purchased	1,336	12
Machinery and equipment purchased	168	2
Dairy equipment purchased	72	1
Real estate improvements	138	1
Land rent	91	1
Decrease in farm capital	198	2
Total other expenses	2,003	19
Total farm expenses	10,819	100
Per cent of farm expenses for the dairy enterprise		86

Eighty-six per cent of all farm expenses were assessed to the dairy enterprise. Thus it is apparent that the dairy enterprise accounted for 86 per cent of the farm receipts and was responsible for 86 per cent of the farm expenses.

Farm Returns

The average family income on these farms (gross receipts less gross expenses) was $2,655 (Table 7). This represents the amount received by the farm operator and his family for their year's work and management and for the use of all farm capital. When the value of unpaid family labor is subtracted from the family income, a farm

TABLE 7. Business Summary, 54 Dairy Farms, North Louisiana Upland Cotton Area, 1946

Item	Per farm
	Dollars
Average per farm:	
1. Total capital	19,894
2. Farm receipts	13,474
3. Farm expenses	10,819
4. Family income (2 minus 3)	2,655
5. Unpaid family labor	485
6. Farm income (4 minus 5)	2,170
7. Interest on capital (at 5%)	995
8. Labor income (6 minus 7)	1,175
9. Farm privileges	873
10. Labor earnings (8 plus 9)	2,048
11. Estimated value of operator's labor	1,538
12. Return on capital (6 minus 11)	632
13. Per cent return on farm capital	3.2%

income of $2,170 is obtained. This is the amount the operator received for his year's labor and management and for the use of all farm capital. If an interest charge on farm capital of 5 per cent is deducted from farm income, the operator's labor income is obtained. The average labor income was $1,175. This represents what the farmer received for his year's work in addition to the use of a house and products furnished by the farm. If the value of farm privileges, which averaged $873 per farm, is added to labor income, the farmers had labor earnings of $2,048 per farm. The operator's labor earnings represent the return to the farmer for his labor and management for the year plus the value of a house to live in and other perquisites.

The value placed by farm operators on their labor and management for the year amounted to $1,538. Subtraction of this amount from the farm income of $2,170 leaves a return to farm capital of $632. This represents a return to farm capital of 3.2 per cent.

Variation in Returns—The 54 dairy farms varied widely in their income-producing ability. This is evident from the variations in labor

income on individual farms, as shown in Figure 2. The highest labor income was $5,411 and the lowest labor income was a minus $2,723. Twenty-eight per cent of the farms in this study had a negative labor income, 46 per cent had a labor income less than $1,000, and 33 per cent had a labor income of $2,000 or more.

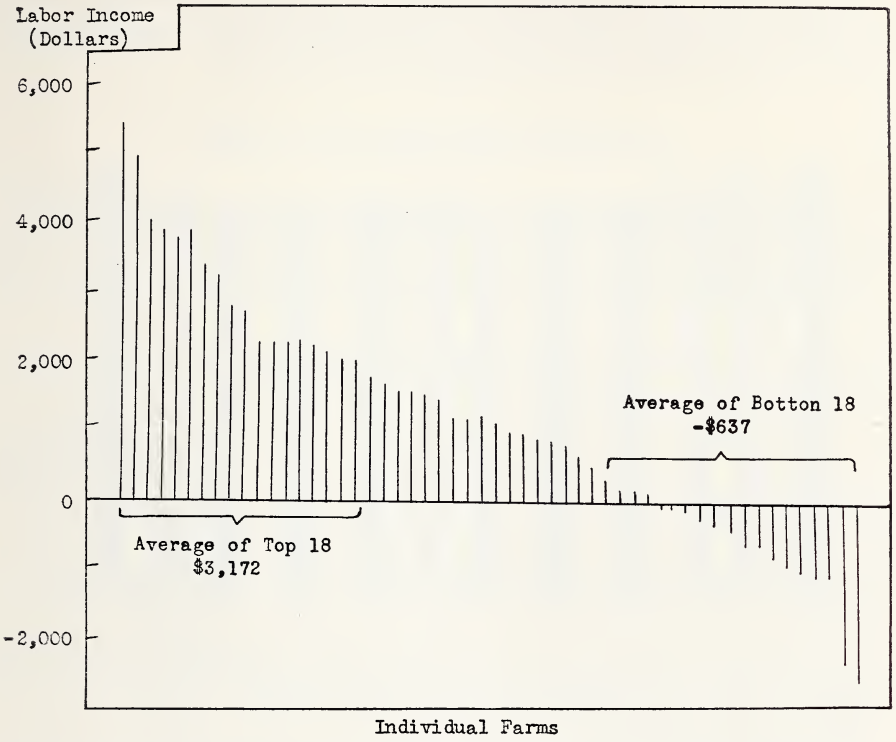

Fig. 2.—Variation in Labor Income on 54 Dairy Farms, North Louisiana Upland Cotton Area.

These results reaffirm the seriousness of the problem with which the dairy industry of this section is confronted, and show conclusively that better management and significant reorganization of farms are necessary if farmers expect to operate their dairy farms on a profitable basis.

The following sections dealing with the dairy enterprise and the farm business attempt to point out some of the causes for the wide variations in income among farms.

THE DAIRY ENTERPRISE

The discussion on the various aspects of the dairy enterprise is presented as follows: (1) production and disposition of milk, (2)

cost of producing milk, (3) enterprise returns, and (4) feeding practices.

Wide variations were found in the enterprise on the 54 farms included in this study. This size of dairy herds varied considerably and ranged from 11 to 163 cows per farm. The average for all farms was 53 cows. Of this number, 64 per cent, or 34.1 cows, were being milked throughout the year. Or stating this another way, the average cow was milked about 8 months out of the year.

Production and Disposition of Milk

The study embraced a total of 2,863 cows that produced 10,908,050 pounds of milk on the 54 farms in 1946. The average production of milk for the year was 202,001 pounds per farm, 74,815 pounds per man equivalent, and 3,811 pounds per cow in the herd (Table 8). Of

TABLE 8. Production and Disposition of Milk, 54 Dairy Farms, North Louisiana Upland Cotton Area, 1946

Item	Production	
	Pounds	Per cent of total
Average per farm:		
Wholesale milk	178,137	88
Retail milk	2,642	1
Surplus milk	6,880	4
Farm use	3,973	2
Calves	10,369	5
Total milk	202,001	100
Pounds of milk per man	74,815	
Pounds of milk per cow in herd	3,811	
Pounds of butterfat per farm	9,218	
Pounds of butterfat per man	3,414	
Pounds of butterfat per cow in herd	174	

the milk produced, 93 per cent was sold, 5 per cent was fed to calves, and 2 per cent was consumed by farm families.

The average butterfat production was 9,218 pounds per farm, 3,414 pounds per man, and 174 pounds per cow. The average annual butterfat content ranged from a low of 3.8 per cent per herd to a high of 5.2 per cent per herd. The average monthly butterfat content for all herds ranged from 4.5 per cent in March, April, and July to 5.2 per cent in December (Figure 3).

Cows on farms in the area were primarily of Jersey strain. Twenty-five herds were composed entirely or to a large extent of purebred cows, while 25 others were composed of grade cows, and 4 herds were about evenly divided between purebreds and grades.

The Cost of Producing Milk

The cost of producing milk was calculated according to the direct allocation method. The direct items of expense, such as feed, labor, milk hauling, etc., that were incurred entirely for the dairy were

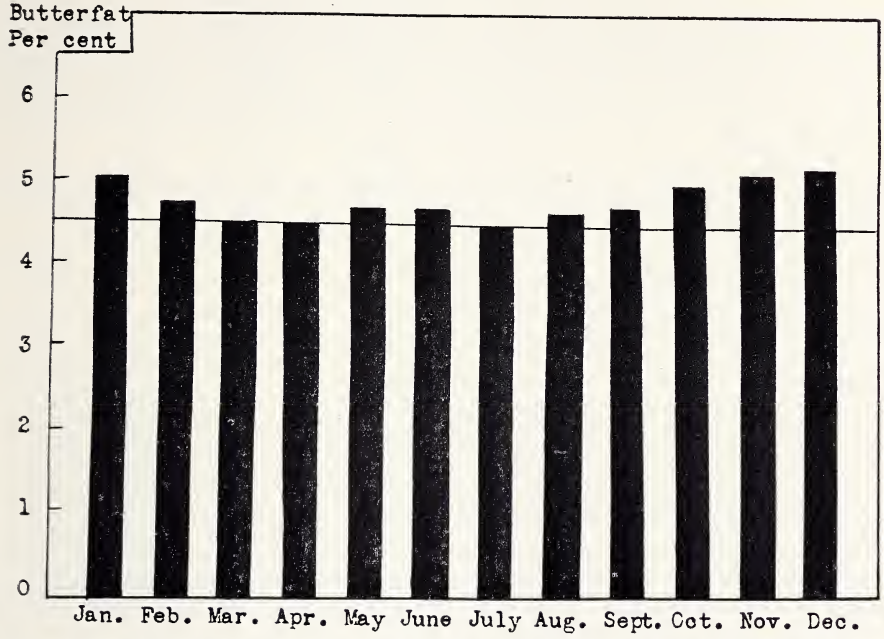

FIG. 3.—Average Monthly Butterfat Content of Milk Sold Wholesale, 54 Dairy Farms, North Louisiana Upland Cotton Area, 1946.

charged directly to the enterprise. Joint costs were allocated on the basis of the use that was attributable to the dairy enterprise.

Purchased feeds were charged at the price the farmer paid for them. Home-grown feeds were charged to the dairy enterprise at the prevailing farm price in 1946.[6] A flat charge of 30 cents an hour for all labor expended directly on the dairy enterprise was charged to the dairy enterprise on all farms.

Feed Costs—Feed was by far the largest item of cost in the operation of the dairy enterprise, accounting for 62 per cent of the total cost of producing milk. The cost of feed was $113.45 per cow, or $2.98 per 100 pounds of milk produced (Table 9).

Of the feed cost, the greater portion was for purchased feeds, which represented 90 per cent of the total feed cost of the dairy

[6]The cost of producing home-grown feeds was not considered in the valuation of these feeds.

enterprise. The average cost of purchased feed was $102.62 per cow, or $2.69 per 100 pounds of milk produced.

TABLE 9. Average Cost of Feed. 54 Dairy Farms, North Louisiana Upland Cotton Area, 1946

Kind of feed	Feed costs per cow in herd	Feed costs per cwt. of milk	Feed costs per farm	
	Dollars	*Dollars*	*Dollars*	*Per cent of Total*
Feed, purchased:				
Concentrates	92.40	2.42	4,897	81
Roughages	10.22	.27	542	9
Total feed purchased	102.62	2.69	5,439	90
Feed, home-grown:				
Concentrates:				
Corn	1.47	.04	78	2
Oats	.21	.01	11	—
Sweet potatoes	.09	—	5	—
Other	.15	—	8	—
Total	1.92	.05	102	2
Roughages:				
Hay	6.81	.18	361	6
Soybeans	1.42	.04	75	1
Sorgos	.68	.02	36	1
Total	8.91	.24	472	8
Total feed home-grown	10.83	.29	574	10
Total concentrates	94.32	2.47	4,999	83
Total roughages	19.13	.51	1,014	17
Total all feed	113.45	2.98	6,013	100

Purchased concentrates, at $92.40 per cow, or $2.42 per 100 pounds of milk, accounted for 81 per cent of the total feed cost, and purchased roughages, at $10.22 per cow, or $0.27 per 100 pounds of milk, accounted for 9 per cent of the total feed cost.[7]

Home-grown feeds, at $10.82 per cow, or $0.29 per 100 pounds of milk produced, accounted for 10 per cent of the feed cost of the dairy enterprise.

Concentrates accounted for 83 per cent of the total feed cost as compared to 17 per cent for roughages. Purchased concentrates, consisting principally of 16 per cent and 18 per cent protein commercial mixed dairy feeds, accounted for 98 per cent of the total cost of concentrates, while home-grown concentrates accounted for the remaining 2 per cent. Purchased roughages accounted for 53 per cent of the total cost of roughages, while home-grown roughages made up the remaining 47 per cent.

Labor, Power and Equipment Costs—The charge for labor, pow-

[7]All references in this study to roughages mean dry roughages.

er, and equipment for the production and hauling of milk is presented in Table 10. This amounted to 20 per cent of the total costs of conducting the dairy enterprise. This charge may be broken down into production costs of $29.22 per cow, or $0.77 per 100 pounds of milk, and milk hauling costs of $6.94 per cow, or $0.18 per 100 pounds of milk.

An average of 77 hours of man labor was spent on each cow in the herd, at a cost of $23.05 per cow, or $0.61 per 100 pounds of milk. This accounted for 64 per cent of the total labor, power, and equipment cost of conducting the dairy enterprise.

TABLE 10. Average Labor, Power and Equipment Costs, 54 Dairy Farms, North Louisiana Upland Cotton Area, 1946

Item	Costs per cow in herd	Costs per cwt. of milk	Cost per farm	
	Dollars	*Dollars*	*Dollars*	*Per cent of Total*
Production:				
Labor	23.05	.61	1,122	64
Truck use	2.26	.06	120	6
Dairy equipment use	1.64	.04	87	5
Auto use	1.02	.03	54	3
Feed hauling	1.25	.03	66	3
Total	29.22	.77	1,549	81
Milk hauling:				
Truck use	1.45	.04	77	4
Hired milk hauling	5.49	.14	291	15
Total	6.94	.18	368	19
		Summary		
Production and hauling:				
Labor	23.05	.61	1,222	64
Truck use	3.72	.10	197	10
Dairy equipment use	1.64	.04	87	5
Auto use	1.02	.03	54	3
Feed hauling	1.25	.03	66	3
Hired milk hauling	5.49	.14	291	15
Total	36.17	.95	1,917	100
Hours of man labor	77	2.0	4,074	
Returns per hour of labor			78 cents	

The average cost of getting the milk from the farm to the milk plant was $0.18 per 100 pounds. A few farmers hauled their own milk to market in their own trucks but most farmers hired their milk hauled to market by local routemen.

Pasture Costs—The cost of pasture for the dairy herd on the 54 farms was $13.45 per cow, or $0.35 per 100 pounds of milk produced, representing 7 per cent of the total enterprise expenses.

Other Costs—Costs other than for feed, labor, power, and equip-

ment, and pasture amounted to $19.02 per cow, or $0.50 per 100 pounds of milk produced. These costs included the cost of crops pastured, farm building use, depreciation of dairy cattle, interest on dairy cattle, and other miscellaneous costs.

Summary of Costs of Producing Milk—The average cost of producing milk was $4.78 per 100 pounds of milk produced (Table 11). However, due primarily to differences in feed and labor expenses among farms, there were great variations in cost on individual farms. Cost per 100 pounds of milk produced on individual farms ranged from $3.35 to $8.37.

TABLE 11. Average Cost of Producing Milk, 54 Dairy Farms, North Louisiana Upland Cotton Area, 1946

Cost items	Costs per cow in herd	Costs per cwt. of milk	Cost per farm	
	Dollars	*Dollars*	*Dollars*	*Per cent of Total*
Feed	113.45	2.98	6,013	62
Labor, power and equipment—Prod.	29.23	.77	1,549	16
Labor, power and equipment—Mkt.	6.94	.18	368	4
Crops pastured	1.64	.04	87	1
Pasture land usage	13.45	.35	713	7
Farm building use	3.89	.10	206	2
Depreciation of dairy cattle	1.64	.04	87	1
Interest on dairy cattle	6.34	.17	336	4
Miscellaneous	5.51	.15	292	3
Total	182.09	4.78	9,651	100

Variation in production costs were so great that it is reasonably obvious that there is urgent need for improving management practices on many individual farms. It is realized that all farms will not be able to produce milk at the lowest cost or at the same cost because of variations in the size of business and other related factors, but it is vital to the industry that farmers with excessive production costs examine their operations with the view of increasing efficiency and reducing unnecessary costs.

Enterprise Returns

Receipts from the Dairy Enterprise—Dairy receipts include the following:

(1) The cash value of all milk sold, which includes milk sold at wholesale and retail and surplus milk that is sold at wholesale for manufacturing purposes.

(2) The estimated value of milk used for human consumption on the farm.

(3) The estimated value of milk fed to calves on the farm.

(4) The estimated value of all manure produced.

(5) The estimated value of all beef contributed by the dairy enterprise for home consumption.

(6) The government milk subsidy received during the first 6 months of 1946.

(7) The appreciation of the dairy herd.

Total dairy receipts averaged $11,604 per farm, $218.94 per cow in the herd, or $5.74 per 100 pounds of milk produced (Table 12).

Milk Receipts—Milk receipts averaged $10,503 per farm, $198.16 per cow in the herd, and $5.20 per 100 pounds of milk produced. Receipts from milk, both cash and non-cash, accounted for 91 per cent of the dairy enterprise returns. Sales of wholesale milk averaged $8,702 per farm, or $164.19 per cow in the herd, and represented 75

TABLE 12. Receipts from the Dairy Enterprise, 54 Dairy Farms, North Louisiana Upland Cotton Area, 1946

Source of receipts	Receipts per cow in herd	Receipts per cwt. of milk	Receipts per farm	
	Dollars	*Dollars*	*Dollars*	*Per cent of Total*
Milk:				
Wholesale	164.19	4.31	8,702	75
Retail	4.34	.11	230	2
Surplus	7.09	.19	376	3
Farm use	3.77	.10	200	2
Calves	7.83	.20	415	4
Subsidy payments	10.94	.29	580	5
Total milk	198.16	5.20	10,503	91
Dairy cattle appreciation	13.96	.37	740	6
Manure used	6.51	.17	345	3
Beef	.30	—	16	—
Total receipts	218.94	5.74	11,604	100
Net enterprise returns over expenses	36.85	.96	1,953	

per cent of the total receipts from the dairy enterprise. Retail sales were $230 per farm, or $4.34 per cow in the herd. Sales of surplus milk accounted for $376 per farm, or $7.09 per cow in the herd. The value of milk consumed on the farm was $200 per farm, or $3.77 per cow, and the value of milk fed to calves was $415 per farm, or $7.83 per cow. The government subsidy received during the first 6 months of 1946 accounted for 5 per cent of all dairy receipts and averaged $580 per farm, or $10.94 for each cow in the herd.

Other Receipts—Appreciation of the dairy herd accounted for

6 per cent of the dairy receipts. The estimated value of manure produced amounted to 3 per cent of the total receipts.

Summary of Returns—Total receipts from the dairy enterprise were $11,604 per farm, $218.94 per cow in the herd, or $5.74 per 100 pounds of milk produced. The total expenses of the enterprise were $9,651 per farm, $182.09 per cow, and $4.78 per 100 pounds of milk produced.[8] The average net return over expenses for the dairy enterprise was $1,953 per farm, $36.85 per cow, or $0.96 per 100 pounds of milk produced.

Feeding Practices

Feed was the most important single item of cost in producing milk in the North Louisiana Upland Cotton Area, accounting for over 60 per cent of the total cost. The importance of feed in milk production suggests the desirability of following the best feeding practices that are recommended to dairy farmers in the area.

The feeding practices followed by most farmers participating in this study varied widely from farm to farm and in the main fell far short of recommended feeding standards. It is probable that the adoption of better feeding practices would do more to increase net returns to the dairy enterprise than any other single factor.

In evaluating the adequacy of the feeding practices employed in the area, it should be recognized that the farmers interviewed were in many cases uniformed as to recommended feeding standards and also that feed was extremely scarce and difficult to obtain during the period covered in this survey. Many dairy farmers would have done a better job of feeding if feed supplies had been adequate. In the appraisal of feeding practices the following points were considered to be of significant importance:

(1) Kind and amount of feed used.

(2) Feeding according to individual production.

(3) Concentrate—roughage ratio.

(4) Milk—concentrate ratio.

Kind and Amount of Feed Used—The kind and amounts of feed used are presented in Table 13. Kinds of feed are summarized as to purchased or home-grown concentrates and purchased or home-grown roughages.

The average quantity of concentrates fed per farm amounted to 140,063 pounds of which 98 per cent was purchased and 2 per cent

[8]See Table 11.

TABLE 13. Kind and Amounts of Feed Used, 54 Dairy Farms, North Louisiana Upland Cotton Area, 1946

Kind of feed	Pounds of feed per cow in herd	Pounds of feed per cwt. of milk	Feed per farm	
			Pounds	Per cent of total
Concentrates, purchased	2,583	67.8	136,913	98
Concentrates, home-grown:				
Corn	46	1.2	2,438	—
Oats	6	.1	293	—
Sweet potatoes	3	.1	148	—
Other	5	.1	271	—
Total	60	1.5	3,150	2
Total concentrates	2,643	69.3	140,063	100
Roughages, purchased	754	19.8	40,000	50
Roughages, home-grown:				
Hay	611	16.0	32,400	40
Soybeans	87	2.3	4,600	6
Sorgos	56	1.5	3,000	4
Total	754	19.8	40,000	50
Total roughages	1,509	39.6	80,000	100
Ratio—Concentrates to roughages				1:0.6
Pounds of milk per pound of concentrates				1.4

was home-grown. The average quantity of roughages fed per farm amounted to 80,000 pounds of which 50 per cent was purchased.

It should be observed that dairymen in the North Louisiana Upland Cotton Area depend almost completely upon purchased concentrates, and only half of all roughages are produced on the farm. This dependence of dairy farmers on purchased feeds has considerable influence upon their feeding practices and is largely responsible for the poor feed balance that exists on most farms.

Feeding According to Individual Production—It is vital that individual cows be fed sufficient feed to provide the necessary nutrients for milk production. If cows of high production capacity are not fed adequately, milk production declines to the level afforded by the nutrients they receive. Many individual cows are potentially high producers but are forced to be lower producers because they are not given the proper kinds and amounts of feed. It is just as unwise to overfeed a poor milk producer as it is to underfeed a good milk producer. Cows with low milk production capacity do not make full use of liberal feeding and only store up excess food nutrients in the form of body fat. Feeding individual dairy cows according to production enables farmers to eliminate the "boarders."

As to the feeding of concentrates, C. H. Staples, an outstanding dairy authority of the South, has stated: "The best plan for grain feeding is to make up a grain mixture for the average of the herd

and then feed each cow in proportion to production. Best results can be obtained only by carefully observing each cow and feeding her according to her requirements. The keeping of an accurate production record by weighing and testing milk is fundamental in securing the maximum production from a dairy cow."[9]

This practice of mixing a grain ration and feeding according to individual production has been a major principle for dairy farmers in the important dairy areas for a long time. Despite this tested principle, only 4 of the 54 farmers interviewed were making an attempt to follow this practice. Most of the farmers were feeding their cows the same amount of feed regardless of production.

Concentrate—Roughage Ratio—In order to secure the greatest net returns from dairying, one of the first essentials is to provide the cows with an abundance of good quality roughage. In the more successful dairy areas cows are usually fed about 3 to 3.5 pounds of roughage for each pound of concentrates. Likewise, in this area the ratio of concentrates to roughages should be about 1 to 3 or 3.5, yet the ratio prevailing on the 54 farms included in this study was 1 pound of concentrates to 0.6 pound of roughage in 1946.

Without question, larger quantities of roughages should be fed to dairy animals in this area; however, it is questionable if the increased feeding of roughages should be brought about through larger purchases. Additional roughage should be produced on the farm. On the basis of enterprise information available on roughage crops in the North Louisiana Upland Cotton Area, it appears desirable, feasible, and profitable for farmers to follow recommended cultural and fertilization practices in the production of forage crops and to produce sufficient forage to meet the minimum requirements of the dairy herd.

Roughage requirements of the dairy herd in this area could be met in part for a large part of the year by the improvement of farm pastures.

Milk—Concentrate Ratio—The milk-concentrate ratio refers to the number of pounds of milk that are obtained from one pound of concentrates. This ratio, or the production of milk per pound of feed, is very low in the North Louisiana Upland Cotton Area. In most successful dairy areas, a production of 2.5 to 3 pounds of milk per pound of concentrates would be considered standard, but only 1.4 pounds of milk were obtained per pound of concentrates fed on the dairy farms included in this survey (Table 13).

An average of 2.643 pounds of concentrates per cow was fed in

[9]Staples, C. H., *How to Select Dairy Cattle and Develop the Dairy Herd,* Extension Circular No. 121, May 1929, Louisiana State University, p. 17.

1946 (Table 13.)[10] The amount of concentrates fed ranged from a herd average of 1,152 pounds per cow annually to a herd average of 5,784 per cow. An average of 10 pounds of concentrates was fed daily to each cow that was being milked. The daily amount fed varied seasonally, ranging from 12 pounds per cow in the winter to 9.5 pounds in the spring, 8.5 pounds in the summer and 10.5 pounds in the fall.

The low milk-to-grain ratio was largely caused by the following: (1) the failure of dairymen to feed according to individual production, (2) the low ratio of roughages to concentrates, (3) the practice of wintering dry cows on high priced concentrates rather than on roughages, (4) feeding young stock and bulls a high proportion of concentrates to roughages, and (5) the inadequacy of pastures for providing a sufficient supply of succulent feed.

Summary on Feeding Practices—In evaluating the adequacy of the feeding practices employed, as well as in appraising those practices that are recommended, it is essential that the following things be considered:

(1) The type and amount of feed that is produced locally in the area.

(2) The degree that dairy farmers depend upon the purchase of commercial feed.

(3) The concentrate—roughage ratio and the relative prices of concentrates and roughages.

(4) The milk-feed ratio and the relative prices of milk and feed.

(5) The opportunity of producing more feed on the farm.

Probably the best way to increase profits from the dairy business in the area is for farmers to adopt approved practices insofar as feasible in order to make more efficient use of their feed and consequently their dairy cows. Ways in which the farmers can cut their production costs are: (1) feed cows according to production, (2) feed dry cows, young stock, and bulls less concentrates and more roughages, (3) fertilize and improve pastures in order to provide grazing for the dairy herd most of the year, (4) fertilize and adopt other recommended practices in the production of forage crops, and (5) grow enough roughages on the farm to provide the proper balance between concentrates and roughages.

[10]Feed calculations were made on the basis of the whole herd including cows, bulls, and young stock. For this reason the amount fed per 100 pounds of milk and the feeding rates were higher than would be the case were they expressed in terms of producing cows only. The herd bulls and young cows are very closely associated with the maintenance of the normal milking herd. Therefore, losses or gains which accrue in this part of the dairy enterprise are reflected in the cost of producing milk.

ANALYSIS OF THE DAIRY FARM BUSINESS

In order to analyze the dairy farm business and find out why some farms met with greater financial success than did others, various factors which bear a relationship or association to the success of the farm business have been studied. It is necessary to know the significance and relative importance of each of these factors to the financial success of dairy farms before a clear and accurate appraisal can be made of needed adjustments and farm re-organization.

Numerous farm management studies over past years have demonstrated the major importance of the following factors on the financial success of farming: (1) size of farm, (2) feeding efficiency, (3) labor efficiency, and (4) rates of production. The data for these farms have been subjected to detailed study and analysis to determine the relationship of these major factors to the farm business and the dairy enterprise.

The number of cows in the herd and the number of cows milked were used as the measure of size of farm. The cost of feed per 100 pounds of milk produced was used as a measure of feed efficiency. Hours of man labor per cow in the herd was the basis of determining the labor efficiency, and production of milk per cow was the basis for evaluating the importance of production rates.

Size of Farm and Its Relationship to Costs and Returns

Relation of the Number of Cows in the Herd to Costs and Returns—The 54 farms were divided into three groups of approximately equal size on the basis of the number of cows in the herd. Farms with less than 31 cows in the herd were considered small farms, 31-73 cows were considered medium, and those with more than 73 cows in the herd were considered large farms. The average number of cows in the herd for all farms was 53.

Returns from the dairy enterprise were greater on the farms with large herds (Table 14). The financial advantage of size is reflected in the dairy enterprise returns per farm, as the large farms had returns of $3,508 as compared with $2,188 on medium-sized farms and $410 on small farms. Labor income and farm income for the farm as a whole were also greater on farms having more than 73 cows in the herd. Returns per hour of man labor were greater on the large farms—91 cents an hour as compared with 85 cents on medium-sized farms and 45 cents on small farms.

There are several other important observations that should be pointed out in evaluating the relationship between the number of cows in the herd and costs and returns:

TABLE 14. Relation of Number of Cows in the Herd to Costs and Returns, 54 Dairy Farms, North Louisiana Upland Cotton Area, 1946

Item	Unit	Number of cows in herd			
		Less than 31	31-73	More than 73	All farms
Number of farms	Number	19	19	16	54
Average number of cows	Number	22	47	97	53
Milk produced per cow	Pounds	4,125	4,277	3,460	3,811
Cost of producing milk per cwt.	Dollars	5.59	4.83	4.48	4.78
Feed cost:					
Per cow	Dollars	132	129	100	113
Per cwt. of milk	Dollars	3.20	3.01	2.89	2.98
Hours of labor:					
Per farm	Hours	2,776	3,972	5,736	4,074
Per cow	Hours	126	85	59	77
Returns per hour of labor	Cents	45	85	91	78
Dairy returns:					
Per farm	Dollars	410	2,188	3,508	1,953
Per cwt. of milk	Dollars	.45	1.09	1.05	.96
Farm income	Dollars	1,183	2,284	3,206	2,170
Labor income	Dollars	483	1,289	1,862	1,175
Per cent return on capital	Per cent	-2.8	3.8	6.3	3.2

(1) The per cent return on capital was larger on the larger farms.

(2) Labor requirements per cow tended to decline sharply as the number of cows in the herd increased.

(3) Feed costs per cow and per 100 pounds of milk produced were lower on the larger farms.

(4) Production rates were lowest on extremely large farms, and highest on the medium-sized farms.

In summary it may be concluded that the larger farms were able to achieve greater efficiency in the use of labor and feed. This resulted in lower production costs per 100 pounds of milk and offset lower production rates and slightly lower returns per 100 pounds of milk produced.[11] As a result, dairy enterprise returns per farm,

[11]Farms with the greatest total returns from the dairy enterprise and the lowest per unit cost of production did not have the highest returns per 100 pounds of milk produced. This was due in part to the low production rates per cow on large farms and to the fact that the average price received for wholesale milk on large farms was 20 cents a 100 pounds less than the price received by medium-sized farms and 18 cents per 100 pounds less than the price received by small farms (due primarily to lower butterfat content). It should be emphasized, however, that total returns and not per unit returns are the important aspects in appraising the general success of the farm business. The farms with large herds were the most profitable, and size served as a multiplier of profits on these farms in 1946.

labor income, and return to capital were all greater on the larger farms.

Relation of the Number of Cows Milked to Costs and Returns —The average number of cows milked throughout the year is also a measure of size and is frequently a more precise measure than the number of cows in the herd because it reflects the intensity in the use of the dairy herd. Again the 54 farms were divided into 3 groups as follows:

(a) Small farms—less than 20 cows milked.

(b) Medium-sized farms—20-45 cows milked.

(c) Large farms—more than 45 cows milked.

Farms milking more than 45 cows had higher returns to the farm business as well as to the dairy enterprise. Farm income on the large farms amounted to $3,187 as compared to $2,266 on medium-sized farms and $1,006 on small farms. Labor income was also greater on the large farms, amounting to $1,720 as compared to $1,401 on the medium-sized farms and $346 on small farms. Per cent return on capital ranged from a negative 4 per cent on the small farms to 5.6 per cent on large farms (Table 15).

Dairy enterprise returns declined from an average of $3,603 on large farms to $334 on small farms. Enterprise returns per 100 pounds of milk were highest on medium-sized farms, $1.10 as compared to $1.04 on large farms and $0.39 on small farms. The large farms were producing more than 2 times as much milk as the medium-sized farms, however, and as a result total returns to the enterprise and the farm business were considerably greater. Returns per hour of labor were more than 2 times as great on large farms as on small farms—93 cents an hour as compared to 42 cents.

Greater efficiency in the use of labor and lower feed costs per cow on the large farms resulted in lower production costs per 100 pounds of milk. Lower production costs were achieved on the large farms despite the slightly lower production rates per cow.

The conclusions on the general relationship of the average number of cows milked to costs and returns are similar to those found when the number of cows in the herd was used as the measure of size. Farmers milking the largest number of cows had (1) the highest returns to the farm business, (2) the greatest total returns to the dairy enterprise, (3) the highest returns per hour of man labor, (4) the lowest production costs per 100 pounds of milk produced, (5) the lowest labor requirements per cow, and (6) the lowest feed costs per cow and per 100 pounds of milk produced.

TABLE 15. Relation of Number of Cows Milked to Costs and Returns, 54 Dairy Farms, North Louisiana Upland Cotton Area, 1946

Item	Unit	Number of cows milked			
		Less than 20	20-45	More than 45	All farms
Number of farms	Number	17	19	18	54
Average number of cows	Number	22	43	93	53
Milk produced per cow	Pounds	3,922	3,874	3,756	3,811
Cost of producing milk per cwt.	Dollars	5.63	5.05	4.44	4.78
Feed cost:					
Per cow	Dollars	123	120	103	113
Per cwt. of milk	Dollars	3.14	3.09	2.88	2.98
Hours of labor:					
Per cow	Hours	2,721	3,746	5,697	4,074
Per farm	Hours	126	86	61	77
Returns per hour of labor	Cents	42	79	93	78
Dairy returns:					
Per farm	Dollars	334	1,840	3,603	1,953
Per cwt. of milk	Dollars	.39	1.10	1.04	.96
Farm income	Dollars	1,006	2,266	3,187	2,170
Labor income	Dollars	346	1,401	1,720	1,175
Per cent return on capital	Per cent	-4.0	4.1	5.6	3.2

Feeding Efficiency and Its Relationship to Costs and Returns

The cost of feed was by far the largest item of expense in producing milk in the North Louisiana Upland Cotton Area, accounting for over one-half of the total enterprise expenses. The average cost of feed was $113 per cow, or $2.98 per 100 pounds of milk produced. Efficiency in the use of feed is probably one of the most important factors affecting the success of dairying and profits on dairy farms. The 54 farms were divided into 3 groups of approximately equal size in order to evaluate the importance of feed costs per unit of milk produced. The three groups were as follows:

(a) Farms having a feed cost of less than $2.60 per 100 pounds of milk produced.

(b) Farms having a feed cost of $2.60 to $3.30 per 100 pounds of milk produced.

(c) Farms having a feed cost of more than $3.30 per 100 pounds of milk produced.

Farmers having lower than average feed cost per 100 pounds of milk produced had higher returns to the farm business and to the dairy enterprise. The farm income on farms where feed costs were

less than $2.60 per 100 pounds of milk produced averaged $2,677 as compared with $1,645 on farms with feed costs of $2.60 to $3.30 and $2,156 on farms having feed costs in excess of $3.30 per 100 pounds of milk (Table 16). Labor income followed a similar pattern. Returns per hour of man labor on farms with lower than average feed costs were double those on farms having feed costs in excess of $3.30 per 100 pounds of milk produced—$1.02 as compared to 51 cents. Per cent return on capital ranged from 6.5 per cent where feed costs were less than average to 1 per cent on farms having medium feed costs and 1.9 per cent on farms having above average feed costs.

Several things should be pointed out that resulted in relatively low returns on farms having higher than average feed costs. It should be observed that those farms had lower than average production rates per cow, and this was a major reason why unit feed costs were higher. Milk production costs were extremely high—$5.97 per 100

TABLE 16. Relation of Cost of Feed per 100 Pounds of Milk Produced to Costs and Returns, 54 Dairy Farms, North Louisiana Upland Cotton Area, 1946

Item	Unit	Cost of feed per 100 pounds of milk			
		Less than $2.60	$2.60-3.30	More than $3.30	All farms
Number of farms	Number	19	18	17	54
Average number of cows	Number	55	55	49	53
Milk produced per cow	Pounds	4,010	4,040	3,285	3,811
Cost of producing milk per cwt.	Dollars	4.08	4.68	5.97	4.78
Feed cost:					
Per cow	Dollars	96	120	127	113
Per cwt. of milk	Dollars	2.40	2.98	3.86	2.98
Hours of labor:					
Per farm	Hours	4,082	4,392	3,728	4,074
Per cow	Hours	75	80	76	77
Returns per hour of labor	Cents	102	76	51	78
Dairy returns:					
Per farm	Dollars	2,924	2,024	794	1,953
Per cwt. of milk	Dollars	1.34	.91	.49	.96
Farm income	Dollars	2,677	1,645	2,157	2,170
Labor income	Dollars	1,730	751	1,003	1,175
Per cent return on capital	Per cent	6.5	1.0	1.9	3.2

pounds as compared to $4.68 on farms with medium feed costs and $4.08 on farms with the lowest feed costs. As a consequence the dairy enterprise returns per farm were very low, and returns per 100 pounds of milk were only 49 cents as compared to 91 cents on farms

with average feed costs and $1.34 on farms with lower than average feed costs.

Low dairy enterprise returns on farms with excessive feed costs were offset largely by proportionately higher crop receipts and receipts from other sources. In other words, the dairy enterprise was of relatively less importance to the farm business on these farms than on either of the other groups of farms.

Labor Efficiency and Its Relationship to Costs and Returns

Efficiency in the use of labor is a major factor affecting the financial success of farming. This is especially true for dairy farms, as the dairy enterprise requires a large amount of man labor. It is believed that the hours of man labor per cow in the herd is probably the best measure of labor efficiency on dairy farms, at least where the dairy enterprise is dominant in the farm organization. The average man labor requirement for the 54 farms in this study was 6,370 man hours in 1946, of which 4,074 hours were expended directly on the dairy enterprise.

The 54 farms were divided into 3 groups on the basis of the hours of man labor expended per cow. The 3 groups were as follows:

(a) Farms requiring less than 65 man hours per cow.

(b) Farms requiring 65-100 man hours per cow.

(c) Farms requiring more than 100 man hours per cow.

The average labor required per cow in the herd for all farms was 77 hours. This comprised all labor expended on the dairy enterprise, including the time spent in caring for heifers, calves, and bulls. The average labor cost amounted to $23.05 per cow in the herd, or $0.61 per 100 pounds of milk produced. The labor cost on individual farms was calculated at a flat rate of 30 cents an hour.

The average cost of labor per cow was $15.76 on farms with the lowest labor requirements, $24.79 on farms with medium labor requirements, and $40.54 on farms with the highest labor requirements per cow in the herd.

Farmers that achieved the most efficient use of labor had the highest returns to the dairy enterprise as well as to the farm business (Table 17). Per cent return on capital declined from 6 per cent on farms where less than 65 man hours were required per cow to 2.9 per cent where 65-100 hours were required and to a negative 0.4 per cent where more than 100 man hours were required per cow in the herd.

The cost of producing milk was closely associated with efficiency

TABLE 17. Relation of Hours of Man Labor per Cow to Costs and Returns, 54 Dairy Farms, North Louisiana Upland Cotton Area, 1946

Item	Unit	Hours of man labor per cow			
		Less than 65	65-100	More than 100	All farms
Number of farms	Number	17	19	18	54
Average number of cows	Number	87	45	30	53
Milk produced per cow	Pounds	3,461	4,177	4,190	3,811
Cost of producing milk per cwt.	Dollars	4.51	4.63	5.61	4.78
Feed cost:					
Per cow	Dollars	101	122	134	113
Per cwt. of milk	Dollars	2.92	2.92	3.19	2.98
Hours of labor:					
Per farm	Hours	4,584	3,676	4,012	4,074
Per cow	Hours	52	83	135	77
Returns per hour of labor	Cents	99	82	51	78
Dairy returns:					
Per farm	Dollars	3,184	1,902	846	1,953
Per cwt. of milk	Dollars	1.06	1.02	.68	.96
Farm income	Dollars	3,050	1,906	1,616	2,170
Labor income	Dollars	1,858	921	797	1,175
Per cent return on capital	Per cent	6.0	2.9	-0.4	3.2

in the use of labor. The cost per 100 pounds of milk produced increased from $4.51 on farms where less than 65 man hours were required per cow to $4.63 on farms with medium labor requirements and to $5.61 on farms where labor requirements exceeded 100 man hours per cow in the herd.

Production rates were lower on the farms with low labor requirements; however, feed costs were also lower. Efficiency in the use of man labor, which was also closely associated with size of the herd and other closely associated factors, largely offset lower production rates. As a result the returns per hour of man labor expended on the dairy enterprise on farms making efficient use of labor were nearly double those obtained on farms where labor requirements exceeded 100 man hours per cow—99 cents as compared to 51 cents an hour.

Production Rates and Their Relationship to Costs and Returns

The pounds of milk produced per cow in the herd is a good measure of production efficiency on dairy farms. It has been established by previous research in other dairy areas that production rates per cow are usually very closely associated with the success of the

dairy enterprise and of the whole farm business where dairying is a major enterprise.

The 54 dairy farms were grouped on the basis of milk production per cow as follows:

(1) Low production rates—where less than 3,500 pounds of milk were produced per cow.

(2) Medium production rates—where 3500 to 4500 pounds of milk were produced per cow.

(3) High production rates—where 4500 pounds of milk or more were produced per cow.

Returns to the dairy enterprise and to the farm business were higher when the production rate per cow exceeded 3500 pounds of milk (Table 18). On farms where production rates exceeded 4500 pounds, however, returns to the farm business declined. Returns per 100 pounds of milk produced were also greatest on farms where production rates exceeded 3500 pounds.

The per cent return on farm capital was highest on the group of farms with medium production rates, amounting to 4.5 per cent,

TABLE 18. Relation of Milk Production per Cow to Costs and Returns, 54 Dairy Farms, North Louisiana Upland Cotton Area, 1946

Item	Unit	Pounds of milk per cow			
		Less than 3,500	3,500-4,500	More than 4,500	All farms
Number of farms	Number	18	18	18	54
Average number of cows	Number	62	54	43	53
Milk produced per cow	Pounds	2,850	3,943	5,048	3,811
Cost of producing milk per cwt.	Dollars	5.37	4.51	4.56	4.78
Feed cost:					
Per cow	Dollars	95	107	148	113
Per cwt. of milk	Dollars	3.34	2.72	2.93	2.98
Hours of labor:					
Per farm	Hours	4,012	4,188	4,030	4,074
Per cow	Hours	64	78	94	77
Returns per hour of labor	Cents	58	86	89	78
Dairy returns:					
Per farm	Dollars	1,134	2,340	2,386	1,953
Per cwt. of milk	Dollars	.64	1.10	1.10	.96
Farm income	Dollars	2,102	2,294	2,112	2,170
Labor income	Dollars	1,109	1,376	1,040	1,175
Per cent return on capital	Per cent	3.2	4.5	2.0	3.2

as compared with a return of 3.2 per cent on the farms with low production rates and 2 per cent on the farms with the highest production rates per cow.

The cost of producing milk was lowest where medium production rates were obtained and averaged $4.51 per 100 pounds of milk produced, as compared with $4.56 where high production rates were obtained and $5.37 on farms with low production rates. Feed costs per 100 pounds of milk produced were lowest on farms obtaining medium production rates and highest on farms with low production rates.

Farms having the highest production rates tended to be smaller than average and also had higher than average labor requirements per cow. It has been shown that over-all farm profits are a function of size and are also closely associated with efficiency in the use of labor. Higher than average labor requirements per cow on farms obtaining higher than average production rates coupled with the fact that these farms were smaller than average reduced materially the advantages of obtaining high rates of production. The size of herd and efficiency in the use of man labor were largely responsible for reasonably high returns to the farm business on farms with low production rates. Even though the cost of feed per 100 pounds of milk produced was higher on the farms with low production rates, the cost of feed per cow was less than two-thirds as much as it was on farms with high production rates. This indicates that reasonably efficient use was being made of feed on farms with low production rates. *The unfavorable ratio existing between milk and feed prices tended to reduce materially the advantage of heavy feeding as a means of achieving higher rates of production during the period covered in this study.*

SUMMARY

1. The average investment in the farm business was $19,894, of which $10,404 was in real estate, $7,152 was in livestock, and the remaining $2,338 was in equipment, machinery, feed and supplies.

2. Farm receipts averaged $13,473, of which 86 per cent was derived from the dairy enterprise. Farm expenses averaged $10,819 per farm and 86 per cent was chargeable to the dairy enterprise.

3. Farm income, which represents the return to the operator for his year's work and management and for the use of his farm capital, averaged $2,170 per farm. If the usual interest rate of 5 per cent is deducted from farm income, the average farmer had a labor income of $1,175 for his labor and management during the year. The average return to farm capital amounted to $632 or 3.2 per cent.

The farm business summary indicates that dairy farming in the North Louisiana Upland Cotton Area was not exceedingly profitable

in 1946. The only reason that many farmers were able to remain in business was the fact that they were able to obtain much of their necessary living requirements from the farm. Labor earnings, which is obtained by adding the estimated value of farm privileges to labor income, averaged $2,048 per farm.

4. There was an average of 53 dairy cows per farm, of which 34 were milked throughout the year. Each cow was milked for about 8 months out of 12. An average of 32 months of man labor per farm was required during the year, or the equivalent of 2.7 men working for the year.

5. Average milk production per farm amounted to 202,001 pounds of milk, of which 88 per cent was sold at wholesale as Grade A milk. Milk production per cow averaged 3,811 pounds.

6. The average cost of producing 100 pounds of milk was $4.78. Of this amount, 62 per cent was for feed and 20 per cent was for labor, power, and equipment.

7. Man labor requirements averaged 77 hours per cow, and returns per hour of labor averaged 78 cents.

8. Purchased feeds represented 90 per cent of the total feed costs. Home-grown feeds made up the remaining 10 per cent. Purchased concentrates accounted for 98 per cent of the total concentrates fed, while purchased roughages accounted for only 53 per cent of the total value of roughages fed.

9. Dairy enterprise receipts amounted to $5.74 per 100 pounds of milk produced. Sales of wholesale milk accounted for three-fourths of the total dairy receipts.

10. Net returns to the dairy enterprise amounted to $0.96 per 100 pounds of milk produced.

11. Feeding practices varied widely from farm to farm and in the main fell far short of recommended standards. Failure to feed according to individual production and failure to achieve balanced rations resulted in inefficient use of the available feed and low production rates. It is probable that the adoption of better feeding practices would do more to increase net returns to the dairy enterprise than any other single factor.

12. It is important to evaluate the significance of important factors affecting the financial success of dairy farms before a clear and accurate appraisal can be made of needed adjustments.

Labor incomes varied widely from a high of $5,411 to a negative $2,723. Twenty-eight per cent of the farmers in this study had a negative labor income and only 33 per cent had a labor income exceeding $2,000. From this it can be seen that dairy farms varied widely from the standpoint of financial success.

13. The size of farm as measured by the number of cows in the herd was one of the most important factors affecting profits on dairy farms. The larger farms were able to achieve greater efficiency in the use of labor and feed. This resulted in lower production costs per 100 pounds of milk and offset lower production rates and slightly lower returns per 100 pounds of milk produced. As a result, dairy enterprise returns per farm, labor income, and return to farm capital were all greater on the larger farms.

14. The cost of feed was by far the largest item of expense in producing milk. As a rule farmers having lower than average feed costs per 100 pounds of milk produced had higher returns to the farm business and to the dairy enterprise.

15. Efficiency in the use of man labor is a major factor affecting the financial success of farming. Farmers that achieved the most efficient use of labor had the highest returns to the dairy enterprise as well as to the farm business.

16. It has been established by previous research in the important dairy areas that production rates are usually closely associated with the success of dairy farming. Returns to the dairy enterprise and to the farm business in this area were higher when production rates exceeded 3,500 pounds of milk per cow. The cost of producing milk was lowest where medium production rates were obtained. Farms with the highest production rates were smaller than average and farmers failed to use their labor as efficiently as farmers did on those farms obtaining medium and low production rates. Large herds and the corresponding efficiency in the use of man labor were largely responsible for reasonably high returns to the farm business and the dairy enterprise on farms with low production rates. The unfavorable ratio existing between milk and feed prices also tended to reduce materially the advantage of heavy feeding as a means of achieving higher rates of production during the period of this study.

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